



W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

# Work Order ID 82317

March-28-12 2:39:39 PM

**\*82317\***

Page 2

Item ID: D4526-043  
 Revision ID:  
 Item Name: Tube Assembly  
 Start Date: 28/03/2012 Start Qty: 8.00  
 Required Date: 11/04/2012 Req'd Qty: 8.00  
 Reference:

Accept

**\*N900040100\***

Setup Start **\*NS1\***  
 Stop **\*NS2\***

Cust Item ID:  
 Customer:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_  
 QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Run Start **\*NR1\***  
 Stop **\*NR2\***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
140		0.00							
<b>*140*</b>									
Large Fab	Memo	0.00							
Large Fab	1- WELD CAP AS PER DWG								
	2- GRIND ONLY THE ENDS FLUSH, TOP WILL BE MACHINE AS PER DWG								
	<u>m 179785</u>								
150	QC10- Inspect visual per QSI004- ground welds	0.00							
<b>*150*</b>									
QC	Memo	0.00							
Quality Control									
160	Manufacture as per dwg	0.00							
<b>*160*</b>									
Lathe Conv	Memo	0.00							
Conventional Lathe	TURN ENDS AS PER DWG								

12-4-3 xs

Sc 7/4/04

xs

12-04-05

8

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

# Work Order ID 82317

**\*82317\***



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March-28-12 2:39:39 PM

Item ID: D4526-043 Accept **\*N900040100\*** Setup Start **\*NS1\***  
 Revision ID: Stop **\*NS2\***  
 Item Name: Tube Assembly  
 Start Date: 28/03/2012 Start Qty: 8.00 **\*8\*** Cust Item ID:  
 Required Date: 11/04/2012 Req'd Qty: 8.00 **\*8\*** Customer:  
 Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_ Run Start **\*NR1\***  
 QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_ Stop **\*NR2\***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
170	QC5- Inspect part completeness to step on W/O	0.00							
<b>*170*</b>									
QC	Memo	0.00		8260605					
Quality Control									
180	Chemical Conversion Coat per QSI005 4.1	0.00							
<b>*180*</b>									
HandFinish	Memo	0.00							8 BL 12-4-9.
Hand Finishing									
190	<del>QC5- Inspect Part Finish</del>	0.00							
<b>*190*</b>									
QC	QC7 Memo	0.00							8 + d M n b e l e q A o ->
Quality Control	PART MUST BE DRY INSIDE								

W/O: 82317		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector
12/04/05	#190	Step #190 should be QC7		12.04.12			

Part No: D4526-043 PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

# Work Order ID 82317

**\*82317\***

Page 4

March-28-12 2:39:39 PM

Item ID: D4526-043 Accept **\*N900040100\*** Setup Start **\*NS1\***  
Revision ID: Stop **\*NS2\***  
Item Name: Tube Assembly  
Start Date: 28/03/2012 Start Qty: 8.00 **\*8\*** Cust Item ID:  
Required Date: 11/04/2012 Req'd Qty: 8.00 **\*8\*** Customer:  
Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_ Run Start **\*NR1\***  
QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_ Stop **\*NR2\***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
200	Identify as per dwg & Stock Location: <u>GA</u>	0.00				8x	Ø		ES 12/04/11
<b>*200*</b>									
Packaging	Memo	0.00							
Packaging									
210	QC21- Final Inspection - Work Order Release	0.00							12/4/12
<b>*210*</b>									
QC	Memo	0.00							
Quality Control									

12-04-12

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
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**NOTE:** Date & initial all entries



# Picklist Print

March-28-12 2:39:44 PM

Page 1

Work Order ID: 82317

**\*82317\***

Parent Item: D4526-043

**\*D4526-043\***

Parent Item Name: Tube Assembly

Start Date: 28/03/2012

Required Date: 11/04/2012

Start Qty: 8.00

Required Qty: 8.00

Comments: IPP REV:A 11.11.28 NEW ISSUE DD VERF:JLM

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
M6061T6T1.000W.188		Purchased	No			100	f	79.6624	2.3458	19.75411			

**\*M6061T6T1 000W 188\***

6061T6 RD TUBE 1.00 X .188W

**\*\***

Location	Loc Qty	Loc Code
MAT016	79.662368	
109041	3	
114089	0.227368	
115868	1.435	
117797	3	
120935	72	

D4526-3

Manufactured No

140 Each

0.0000

2

16

**\*D4526-3\***

Cap

**\*\***

82519 x 16

19.8 12-3-29

EL 12-4-3

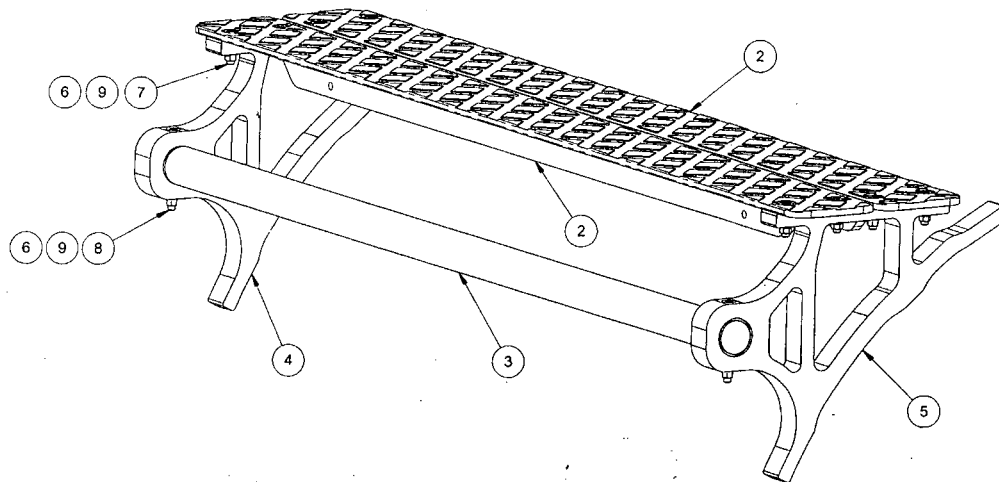
W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

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**NOTE:** Date & initial all entries



**D4526-042 MAINTENANCE STEP ASSEMBLY**

ITEM	QTY -042	PART NUMBER	DESCRIPTION
1	X	D4526-042	MAINTENANCE STEP ASSEMBLY
2	2	D4092-1	MAINTENANCE STEP
3	1	D4526-043	TUBE ASSEMBLY
4	1	D4527-1	BRACKET
5	1	D4527-3	BRACKET
6	10	MS21042L3	NUT
7	8	MS24694-S55	SCREW
8	2	MS24694-S75	SCREW
9	10	NAS1149D0332J	WASHER

SHOP COPY  
RETURN TO  
ENGINEERING  
UNCONTROLLED COPY  
SUBJECT TO AMENDMENT  
WITHOUT NOTICE  
WORK ORDER

NO. 82317 MLCJ  
12/03/28

**RELEASED**  
2011-11-28

A	NEW ISSUE	RF	11.11.22
REV.	DESCRIPTION	BY	DATE
DESIGN	RF	<b>DART AEROSPACE USA, INC.</b>	
DRAWN	RF	KENT, WA	
CHECKED	<i>[Signature]</i>	DRAWING NO.	REV. A
MFG. APPR.	<i>[Signature]</i>	D4526	SHEET 1 OF 5
APPROVED	<i>[Signature]</i>	TITLE	SCALE
DE APPR.	<i>[Signature]</i>	MAINTENANCE STEP ASSY	NTS
DATE	11.11.22	<small>COPYRIGHT © 2011 BY DART AEROSPACE USA, INC. THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE USA, INC.</small>	

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

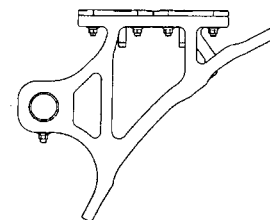
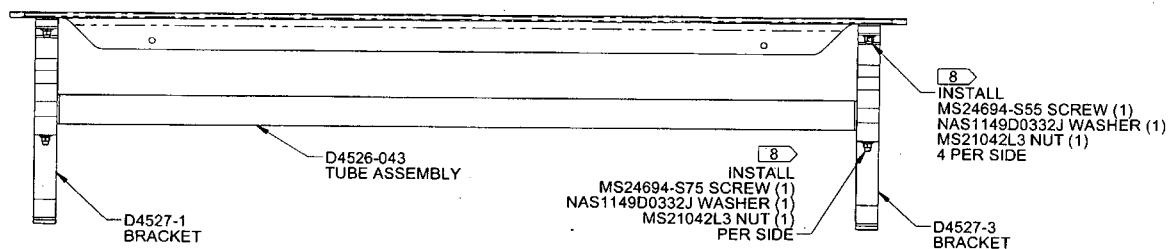
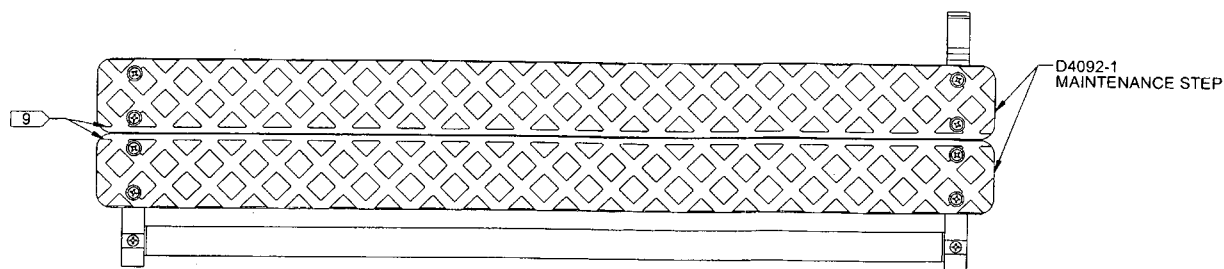
Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

82317



**D4526-042 MAINTENANCE STEP ASSEMBLY**

**RELEASED**  
2011-11-28  
*MP*

**NOTES:**

- 1) MATERIAL: N/A
- 2) FINISH: N/A
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: PER QSI 044 6.1
- 7) WEIGHT: 7.09 lbs
- 8) TORQUE SCREWS UP TO 15-25 in-lb (1.7-2.8 N-m)
- 9) GRIP CUTOUT TOWARD CENTER

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DRAWN	RF		
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MFG. APPR.	<i>[Signature]</i>	SHEET 2 OF 5	
APPROVED	<i>[Signature]</i>	TITLE	SCALE
DE APPR.	<i>[Signature]</i>	<b>MAINTENANCE STEP ASSY</b>	NTS
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Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

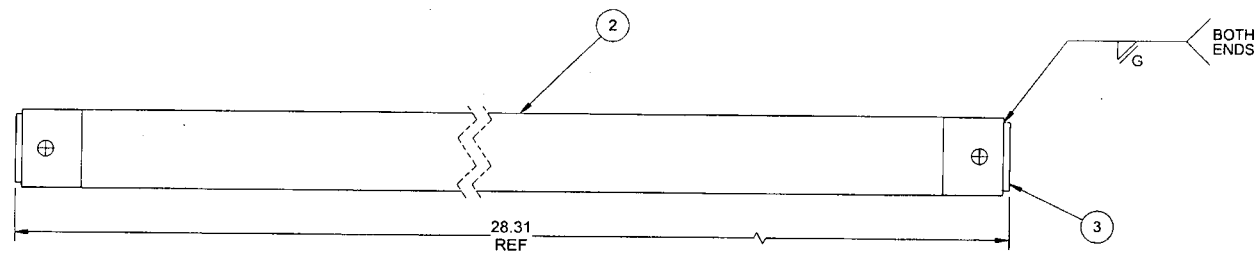
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**NOTE:** Date & initial all entries

ITEM	QTY -043	PART NUMBER	DESCRIPTION
1	X	D4526-043	TUBE ASSEMBLY
2	1	D4526-1	TUBING
3	2	D4526-3	CAP

82317



**D4526-043 TUBE ASSEMBLY**

**RELEASED**  
R 2011-11-28  
ND

**NOTES:**

- 1) MATERIAL: N/A
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: PER QSI 044 6.1
- 7) WEIGHT: 1.32 lbs
- 8) WELD PER QSI 004

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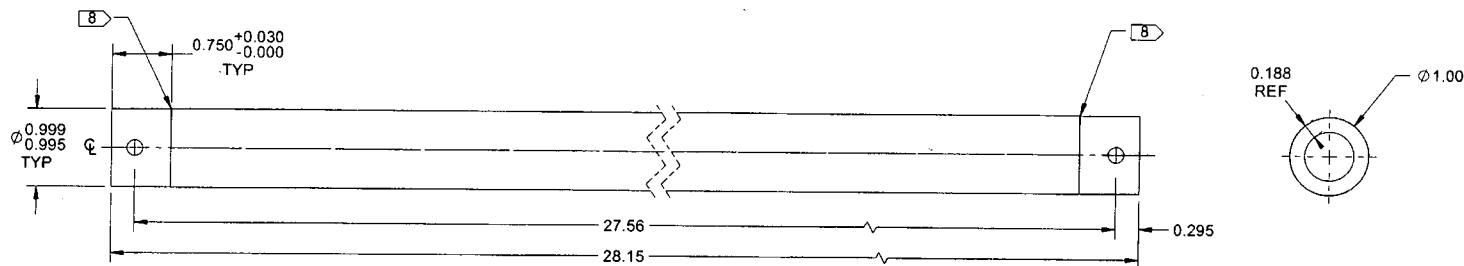
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DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries



82317



**D4526-1 TUBING**

**RELEASED**  
2011-11-28  
AM

**NOTES:**

- 1) MATERIAL: 6061-T6 OR 6061-T62 TUBING  
PER WW-T-700/6 OR AMS 4080 OR AMS 4082  
OR QQ-A-200/8 OR QQ-A-225/8  
REF DART SPEC M6061T6T1.000W.188
- 2) FINISH: NONE
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: N/A
- 7) WEIGHT: 1.31 lbs
- 8) MIN RADIUS OF TRANSITION OF R0.06

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APPROVED	<i>[Signature]</i>	TITLE	SCALE
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DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

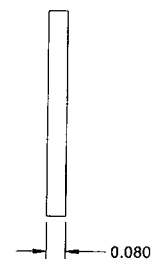
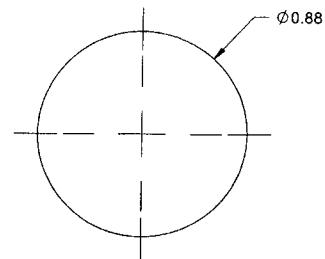
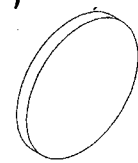
Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

82317



**D4526-3 CAP**

**RELEASED**  
2011-11-28

**NOTES:**

- 1) MATERIAL: 6061-T6/T651/T6510/T6511/T62 ALUMINUM ROUND BAR  
PER QQ-A-225/8 OR AMS-QQ-A-225/8 (OR AMS 4117/4128/4115/4116)  
OR QQ-A-200/8 OR AMS-QQ-A-200/8 (OR AMS 4160) OR ASTM B211 OR ASTM B221  
REF DART SPEC M6061T6R
- 2) FINISH: NONE
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: N/A
- 7) WEIGHT: 0.005 lbs

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MFG. APPR.	<i>[Signature]</i>	D4526	SHEET 5 OF 5
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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

**From:** Roberto Fuentes <rfuentes@dartaero.com>  
**Sent:** Tuesday, November 29, 2011 2:45 PM  
**To:** Jean-Luc Menard  
**Cc:** David Shepherd  
**Subject:** D4526-1 Tubing

JL,

The hole diameter in both end of the D4526-1 Tubing is  $\varnothing 0.201"$ . The drawing will revise after pass conformity inspection of this new maintenance step by ERA.

Thanks to let know,  
Roberto

